



Economic Impact of the 2020 Ouray Ice Festival

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Published March 15, 2020

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Findings Summary

This study examined the economic impact of the 2020 Ouray Ice Festival which occurred in Ouray, Colorado on January 23-26, 2020. In all, 5,000 persons participated in the event. Major findings of this study include:

1. Participants living outside Ouray County **spent an estimated \$808,359 in Ouray County while at the Ouray Ice Festival.**
2. Participants living outside Ouray County **generated \$349,843 in labor income in Ouray County** as a result of the Ouray Ice Festival.
3. Participants living outside Ouray County spent around \$130 on day visits, while persons staying overnight spent an additional \$96 on motels/hotels or \$25 on cabin/AirBnB use.
4. Participants focused nearly all of their expenditures inside Ouray County rather than the surrounding area.

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Pictures courtesy of Ouray Ice Park

Meet Your Research Team



Dr. James N. Maples is an associate professor of sociology at Eastern Kentucky University and research fellow at Center for Economic Development, Entrepreneurship, and Technology, where he examines the political economy of outdoor recreation and renewable tourism. His research interests include the economic impact of outdoor recreation and social change in rural areas. He is also an Eagle Scout, Girl Scout dad, hiker, and metal detectorist.



Dr. Michael J. Bradley is an associate professor and director of graduate studies in the Department of Recreation and Park Administration at Eastern Kentucky University. His professional and academic interests include human dimensions of natural resource and wildlife management as well as sustainable recreation practices as it relates to outdoor recreation.



Chris Garness is a Sociology and Communication Studies double major at Eastern Kentucky University. Graduating in May of 2020, Chris plans to continue his acquisition of new and interesting skills through an ever-changing career path. With experience in graphic design, office assistance, data analysis, carpentry, welding, sales, management, and much, much more, Chris plans on entering professional carpentry upon graduation with a specialty in remodeling whilst keeping up with other skills.



Taylor Luneau is the Policy Manager at The American Alpine Club where he works to preserve recreation access to public lands, conserve healthy mountain environments and ensure the protection of treasured lands for human-powered recreation. Taylor holds a Master of Environmental Law and Policy from Vermont Law School and a Master of Science in Natural Resources from the University of Vermont. Specializing in land use law and forest management, Taylor advocates for the ability of outdoor recreation to support land conservation goals, revitalize rural economies and inspire future land stewards.



Dr. Thomas M. Martin is the Executive Director of the Center for Economic Development, Entrepreneurship & Technology (CEDET) at Eastern Kentucky University. CEDET provides guidance and assists ECU faculty and staff, along with communities, entrepreneurs, businesses, industries, institutions and government with accelerating innovation and economic development.

Methodological Summary

The purpose of this study is to establish the economic impact of the 2020 Ouray Ice Festival, which occurred in Ouray, Colorado on January 23-26, 2020. In all, 5,000 persons participated in the event.

Study Area

For this study, Ouray County, Colorado serves as the study area. The study area encapsulates the site of the event and likely locations where the expenditures related to this event would occur. Ouray County encompasses Ouray and its city limits as well as the main corridors participants living outside the study area are most likely to travel while participating in the event.

Located within walking distance of downtown Ouray is the Uncompahgre Gorge, home to the municipally owned Ouray Ice Park which is operated the non-profit Ouray Ice Park, Inc. (OIPI). OIPI staff “farm” ice by spraying gravity fed municipal water on the shady cliffs of the Gorge, making for reliable and easy access ice climbing typically between December and April of each year. This world class ice climbing destination is free and open to the public however many visitors choose to become annual members of OIPI to support their ongoing work. The Ice Park host several hundred climbing routes and is the primary location for the Ouray Ice Festival.

Data Collection

Researchers collected data via an online survey of participants during the event. The survey was sent by Ouray Ice Park staff to a list of 450 persons who participated in the event and purchased gear cards for the event. Of the 450 person sample, 111 agreed to complete surveys following the event.

Data Cleaning

Prior to the analysis, specific changes were made to the data [to provide conservative economic impact estimates](#) while reducing the impact of points of influence inflating estimates. Researchers excluded 18 cases for completing less than ten percent of the survey. Researchers excluded 15 cases who self-reported as local residents (see next paragraph for more details). Researchers excluded two cases due to providing no zip code or other identifying information, which prevented identifying their residences in relation to the study area. Researchers excluded no cases due to having group sizes of eight or larger. Researchers excluded one cases due to unusually long stays (greater than twelve days, which is three times the length of the event). This left 85 cases for analysis.

Mean Expenditure Creation

This study adheres to established [outdoor recreation analysis guidelines](#) utilized by the [United States Forest Service](#). First, the researchers sort attendees into *participants living inside the study area* and *participants living outside the study area* based on self-reported zip codes. Note that expenditures from participants living outside the study area are used to estimate the economic impact described later in this report. Local expenditures, *while important*, [are not indicative of economic impact](#) as their funds are already located within the local economy and are redirected as a result of the activity

being studied. Local expenditures are not reported in this analysis and are excluded from the economic impact estimates.

Second, researchers established mean expenditures for participants living outside the study area based on their self-reported expenditures in [common categories used in most economic impact studies](#). These included lodging (which is further sorted by hotel/motel, camping, and cabin rental, gasoline, taxi/transport, full-service restaurants (e.g. dine-in restaurants), limited-service restaurants (e.g. fast food), convenience/gas station food purchases, groceries, retail non-food purchases, and recreational gear retail purchases. Separate expenditures were tracked for activity *inside* the study area and activity *outside* the study area *but still in Colorado*. While the researchers report both, only expenditures in the study area are modeled in IMPLAN for economic impact purposes. As part of preparing these means, researchers adjust individual respondent expenditures for group size by dividing the respondent's reported expenditures by their reported group size.

Third, prior to estimating means, the researchers recode as missing data all retail non-food expenditures above \$500 as a precaution against overestimation. This included recoding two recreational retail purchases outside the area as missing. As retail expenditures may also be used outside the area where they are purchased, only 1/5th of the value of these retail non-food purchases (which included recreational purchases and general retail purchases) were attributed to economic impact in the analysis.

Fourth, the researchers recode as missing data all individual respondent expenditures reported higher than the third standard deviation of their category mean. This technique further addresses overestimating economic impact and provides reliable, conservative means for analysis rather than allowing a particular respondent's disproportionate expenditures to skew the means higher than they typically would be.

Visitation Estimation

Visitation estimates of 5,000 participants came directly from organizers for the event. Based on survey responses, the research team conservatively estimates that 10% of participants and volunteers lived in the study area. As such, the study is built on the estimate of 4,500 participants living outside the study area with estimates that 80% stayed overnight (eg. 3,600 overnight participants living outside the study area). To model overnight stays, the researchers modeled that 2,800 used motels or hotels while 800 used cabins or rental homes.

IMPLAN Analysis

Conservative visitation estimates and mean expenditures (having now accounted for group sizes and points of influence) are built within IMPLAN, an industry-leading economic impact calculation system, to explore how expenditures by participants living outside the study area shape the study area economy. IMPLAN uses input-output modeling to establish economic impact across three measures: output, value added, and labor income. The researchers define and explain these [later in the report](#).

The analysis follows approaches used in [prior peer-reviewed research](#) and United States [Forest Service](#) studies. Local purchasing percentages are set at 100%, which is appropriate for this kind of study. Where possible, retail purchases are modeled back to their source (e.g. gasoline is modeled back to refineries). Where less is known about the retail purchases (e.g. general retail), retail purchases are margined to give a more nuanced perspective on their impact.

Study Area Summary

Economic impact study areas are built around the location where the event being studied occurs and the cities and towns where visitors are most apt to spend funds as part of their trip. For this analysis, Ouray County, Colorado is being used as the study area. This study area was constructed as a result of locating and examining economic activities and services available in the region, major roadways, and visitor destination locations based around the event being studied. Ouray County includes the town of Ouray, where the event being studied is held.

Table One lists descriptive economic indicators for the study area. This study area’s economy includes over \$165 million in gross regional product, \$261 million in personal income, and an estimated 3,736 workers in 150 industries. The study area covers 542 square miles and holds an estimated 4,857 residents and 2,150 households.

Table Two provides detail related to the major employment sectors (based on number of employees) in the study area. Here, these include real estate (340 jobs), full-service restaurants (213 jobs) and the silver ore mining industry (185 jobs).

Table One. Economic Indicator Summary of Study Area

Indicator	Study Area Estimates
Gross Regional Product	\$165,306,528
Total Personal Income	\$261,348,500
Total Employment	3,736
Number of Industries	150
Land Area (Square Miles)	542
Population	4,857
Total Households	2,150

Table Two. Major Employment Summary of Study Area

Employment Type	Jobs Represented	Labor Income
Real estate	340	\$3,879,020
Full-service restaurants	213	\$4,700,149
Silver ore mining	185	\$12,897,149
Private households	168	\$3,005,526
Local government, education	146	\$6,952,790
Local government, non-education	144	\$6,627,119
Retail, general	110	\$2,241,322
Hotels and motels	108	\$2,653,263

Mean Expenditures and IMPLAN Categories

Table Three shows details related to mean expenditures within the study area for participants living outside the study area. The table delineates expenditures by specific categories that are modeled in IMPLAN later in the report. Recall from the methods section that these means have been adjusted for group size. Cases with responses higher than the initial mean's third deviation have been excluded. Retail expenditures over \$500 have been recoded as missing data. All variables have been adjusted for group size.

The highest expenditure category was motel/hotel lodging, where participants living outside the study area reported spending an average of \$96.65 as a result of this event. Next is full-service restaurants at \$63.43 followed by guide services at \$25.57.

On average, participants living outside the study area spent around \$130 as a result of attending this event without staying overnight, \$227 when staying overnight in a hotel, and \$155 when staying overnight in a cabin.

Table Three. Mean Expenditures Inside Study Area

	N	Mean	Std. Dev	Min	Max	IMPLAN Cat.
Lodging – Motels/Hotels ¹	76	\$96.65	129.94	0	420	499
Lodging – Camping/RV use	-	-	-	-	-	500
Lodging – Cabins/Rental Houses	74	\$25.13	53.42	0	200	500
Gasoline	76	\$10.12	13.20	0	45	156
Food - Limited Service (fast food)	78	\$0.03	0.23	0	2	502
Food - Full Service (dine in)	80	\$63.43	57.30	0	225	501
Food - Gas Stations	79	\$0.93	2.57	0	10	402
Food - Groceries	76	\$9.79	15.65	0	50	400
Retail - Other Retail*	80	\$8.53	15.28	0	50	405
Retail – Recreational Gear*	75	\$10.95	21.00	0	80	404
Retail – Rental Gear	77	\$1.26	2.61	0	10	404
Retail – Guide Services	76	\$25.57	49.65	0	175	404
Taxi/Lyft/Uber	-	-	-	-	-	442

* As these purchases could be used elsewhere, only 1/5 of the value is modeled in the final analysis. For this study, recreational gear is assumed to be climbing gear.

- Due to few responses, no estimates are created or modeled for this category.

¹ At first glance, lodging estimates may seem disproportionately low for the cost of a typical hotel room. However, recall that these mean expenditures account for group sizes. As such, the cost of a hotel room is often shared by more than one person. Additionally, zero expenditure case would still be included for persons staying in some other form of overnight lodging.

Economic Impact Terminology

In the following paragraphs, we use three terms to describe economic impact: *direct effect*, *indirect effect*, and *induced effect*. **Direct effect** is the economic result created by the money spent as a result of visitors being present in the study area. This direct effect can generate further change in the local economy via indirect and induced effects. **Indirect effect** is economic activity created when local businesses purchase goods and services from other local industries as a result of the direct effect. For example, indirect effect could include a local restaurant buying vegetables to create future meals for sale. Finally, **induced effect** is the estimated expenditures by local households and employees as a result of the initial direct impact. For example, a local restaurant employee may choose to spend his/her wages at another local business, creating additional rounds of local economic activity.

These three terms can also be further divided by their *employment impact* in the region, *value added* to the local economy, and *output*. **Labor income impact** is measured by the estimated labor income (for employees and proprietors) created by the economic activity in the region. Labor income impact is a conservative estimate of economic impact and is the approach highlighted in this report. **Value added** indicates the true economic wealth added to the local economy after subtracting the cost of inputs needed to conduct everyday business. Value added includes expenditures in profit, employment compensation, and taxes. Finally, **output** is value added plus total revenues and sales from economic activity.

Economic Impact Estimates

Based on the data collected, the research team estimates that participants living outside the study area **spent an estimated \$808,359.00 in Ouray County as a result of participating in the Ouray Ice Festival**. This estimate comes from mean expenditures (\$130 as a result of attending this event without staying overnight, \$227 when staying overnight in a hotel, and \$155 when staying overnight in a cabin) and visitation estimates (5,000 persons, 4,500 of which do not live in the study area and 3,600 of which are estimated to have stayed overnight) outlined earlier in the report.

Table Four highlights what occurs when these funds were spent inside the study area. Focusing on labor income (the most conservative measure of economic impact of the three listed), holding this event in Ouray County generated an estimated \$349,843 in labor income for employees and proprietors in the study area.

Table Four. Economic Impact Summary of Participants Living Outside the Study Area

Impact Type	Labor Income	Value Added	Output
<u>Direct</u>	\$272,871	\$385,164	\$690,905
<u>Indirect</u>	\$45,761	\$65,200	\$173,741
<u>Induced</u>	\$31,211	\$65,331	\$137,670
Total Effect	\$349,843	\$515,695	\$1,002,316

Table Five details employment industries where expenditures make the most noted impact in terms of labor income produced. Overall, expenditures create the most support for jobs in the full-service restaurants, hotels and motels, and sporting goods retailers.

Table Six shows the tax benefits of this event. Participants living outside the study area expenditures supported an estimated \$82,002 in state/local taxes and another \$73,470 in Federal taxes.

Table Five. Labor Income Generated by Event

Employment Type	Labor Income
Full-service restaurants	\$132,734
Hotels and motels	\$70,530
Retail, sporting goods (e.g. climbing gear)	\$32,983

Table Six. Annual Estimated Taxation Generated by Event

Tax Type	State/Local Amount	Federal Amount
Employee Compensation	\$997	\$34,355
Proprietor Income	\$0	\$2,810
Tax on Production and Imports	\$72,222	\$8,211
Households	\$8,630	\$26,957
Corporations	\$153	\$1,137
Totals	\$82,002	\$73,470



Expenditures beyond Study Area but Still in Colorado

Recall that the researchers also measured expenditures beyond the study area but still in Colorado as a result of participating in this event. **Table Seven** shows mean expenditures outside the study area but still in the state of Colorado. Please note these expenditures are *not* modeled in IMPLAN as they occur outside the study area. Beyond the study area, gasoline (\$1.65) was the greatest expenditure. Based on the low means, it is evident that nearly all attendees stayed inside Ouray County and almost the entirety of expenditures created by this event occurred within the study area. **This resulted in an estimated \$8,775.00 in additional expenditures outside the county but still in Colorado.**

Table Seven. Mean Expenditures Outside Study Area but inside Colorado

	N	Mean	St Dev	Min	Max
Lodging – Motels/Hotels	-	-	-	-	-
Lodging – Camping/RV use	-	-	-	-	-
Lodging – Cabins/Rental Houses	-	-	-	-	-
Gasoline	72	\$1.65	5.82	0	30
Food - Limited Service (fast food)	75	\$0.09	0.57	0	4
Food - Full Service (dine in)	-	-	-	-	-
Food - Gas Stations	79	\$0.02	0.14	0	1.25
Food - Groceries	79	\$0.19	1.69	0	15
Retail - Other Retail*	-	-	-	-	-
Retail – Recreational Gear*	-	-	-	-	-
Retail – Rental Gear	-	-	-	-	-
Retail – Guide Services	-	-	-	-	-
Taxi/Lyft/Uber	-	-	-	-	-
- Due to having few responses in this category, expenditures have not been estimated.					

Sample Demographics

As seen in **Table Eight**, most respondents were male (59%) and most (51%) had a Bachelor's degree. Respondents were also shown to mostly (28%) consist of persons between the ages of 29 and 34, but all were 21 years-old or older. The income demographic shows that the largest percentage of respondents (37%) made more than a hundred thousand dollars a year before taxes, with the second largest amount (29%) making between thirty and fifty thousand dollars a year. Lastly, the table shows the amount of business owners (11%) is much less than non-business owners (88%).

Table Eight: Sample Demographics – Frequency

	Obs	%
Sex		
Female	31	41%
Male	44	59%
Age		
21-25	12	18%
26-28	8	12%
29-34	19	28%
35-40	14	21%
41-50	7	10%
Over 50 years old	7	10%
Education Summary		
Some college, no degree	5	7%
Completed Associate's or technical degree	2	3%
Completed Bachelor's degree	39	51%
Completed Master's degree	19	25%
Completed Doctorate/ terminal degree	4	5%
Currently working on Master's degree	4	5%
Currently working on Doctorate/ terminal degree	2	3%
Personal Annual Income Summary		
\$0-\$19,999	2	3%
\$20,000-\$29,999	2	3%
\$30,000-\$49,999	11	15%
\$50,000-\$74,999	22	29%
\$75,000-\$99,999	10	13%
Greater than \$99,999	28	37%
Do you own your own business?		
Yes, I do	8	11%
No, I don't	66	88%

Omissions and Considerations

During the research process, the research team identified minor issues that should be noted. First, as is always the case with economic impact studies, the findings in this report must be treated as estimations. This economic impact study utilizes mean figures to estimate expenditures that may vary from year to year, visit to visit, event to event, and person to person.

Second, [self-reported economic expenditures data inherently may include error and/or inflation](#). For example, respondents rounding expenditures to the nearest dollar, forgetting expenditures, or unintentionally misstating expenditures are common issues in any economic impact study. Depending on when the respondent completed the survey (e.g. at the start versus end of the trip) can also shape expenditures. As such, the research team recommends repeating this study in a future year to validate the estimates.

Third, due to limited knowledge about the population being sampled, the research team cannot be certain that the sampling is representative of the population. The study also includes a relatively small sample of the total attendees, which may impact the mean expenditures.

Fourth, the study only addresses expenditures from participants and excludes volunteers, vendors, and any other categories which may have been present. In future studies, expenditures could be modeled separately for a more detailed estimate.

Fifth, the researchers make the assumption that respondents' primary purpose of their trip to the study area is to *participate in the event being studied*. This does not exclude those engaging in other activities while there, but posits that participating in the event being studied is the primary purpose for visiting the region.

Contact Information for Future Studies

Our research team regularly conducts economic impact studies and outdoor recreation research across the nation. If you or your organization is interested in conducting a study, please contact lead researchers **Dr. James Maples** at james.maples@eku.edu or **Dr. Michael Bradley** at michael.bradley@eku.edu for further information.

